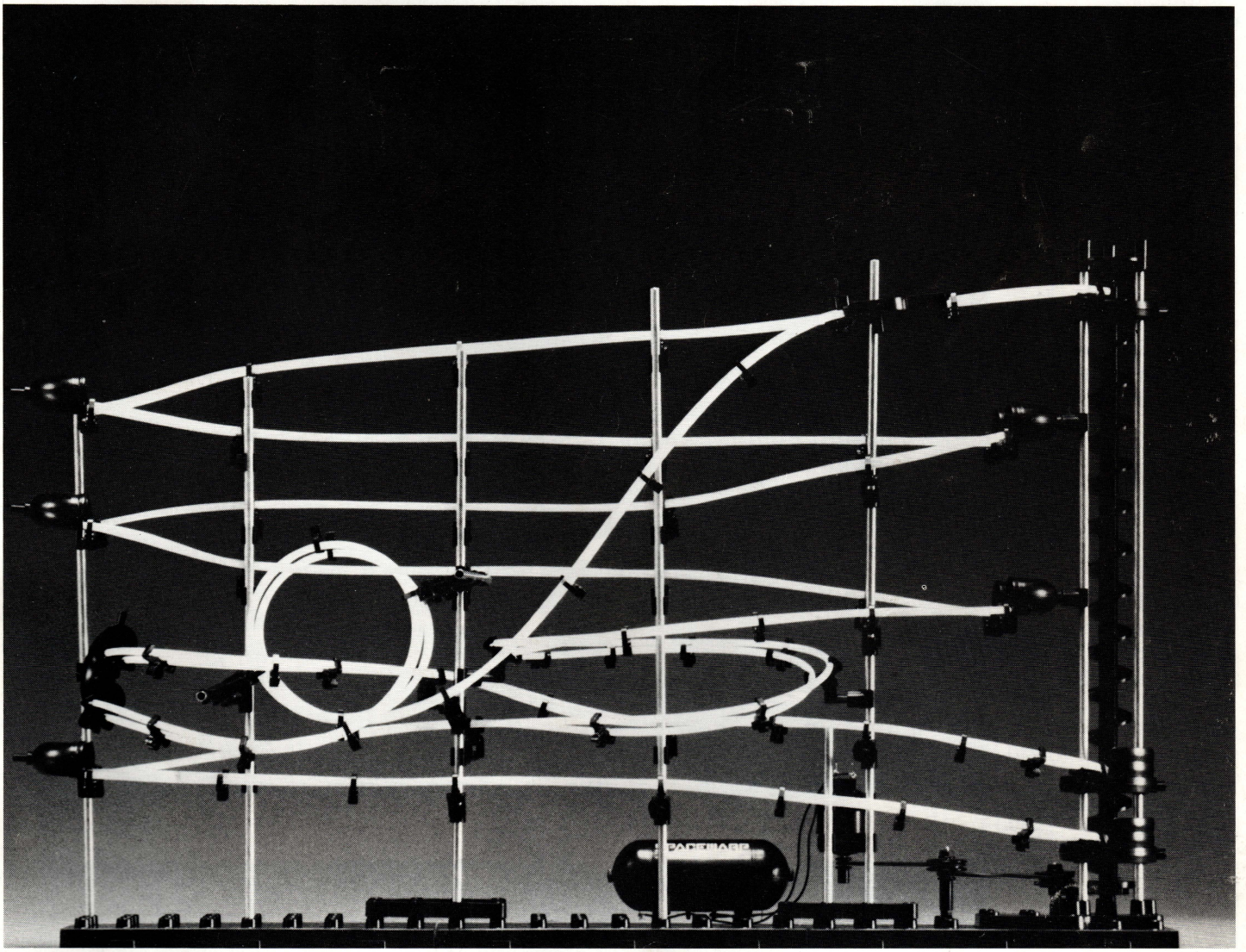
INSTRUCTION BOOKLET

SPACEWARP™

It's fun and full of excitement! Build a crazy roller coaster.

SET 10 Beginner Coaster



For children under 12 years old, parental assistance in assembly of item may be required.

BANDAI

This set has been specially designed to take up a minimum amount of space. It is very compact and uses a new technique for curving the balls to allow a very shallow depth.

PRIOR TO ASSEMBLY

- Read the instructions carefully before assembling.
- The parts are shown on the back cover. Check that all the parts are included before assembling.
- Trim any extra plastic off components.
- The tools you might need for assembly are pliers, a Phillips screwdriver, needle nose pliers and mat knife.
- Cut out the parts list on the back cover and refer to it when assembling.

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How to assemble 1-11 . . . . . P3-P7
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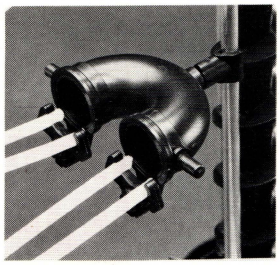
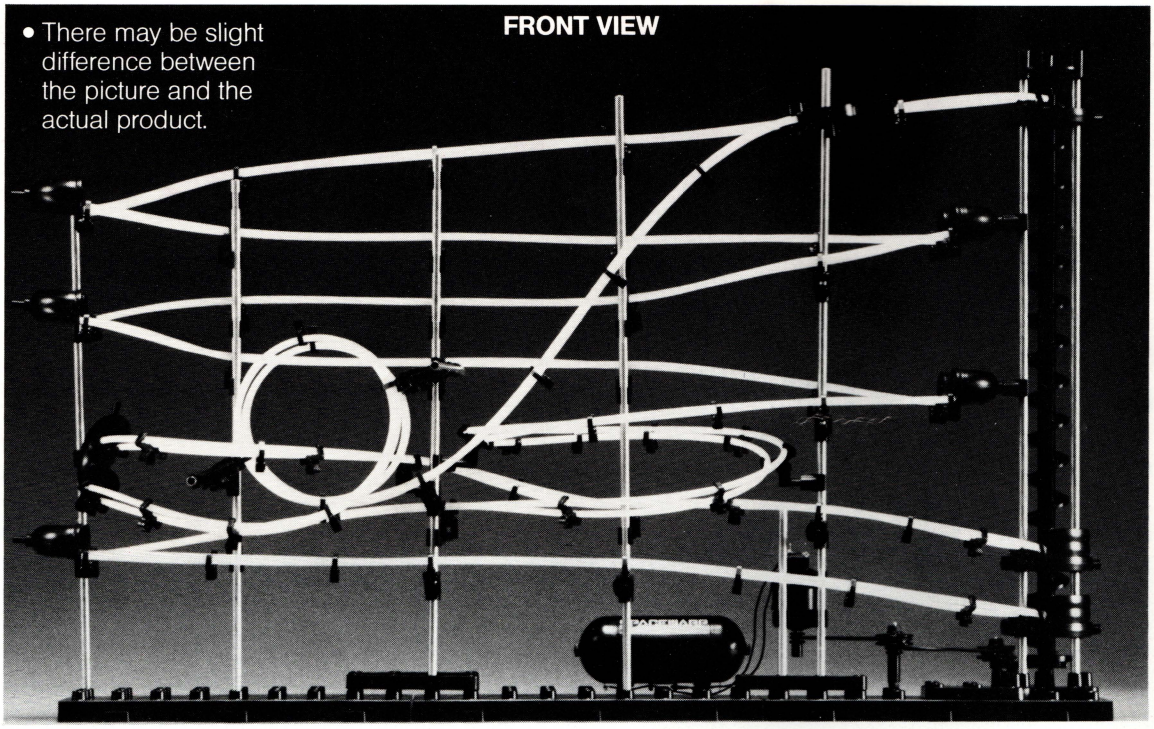
CURVE UNIT

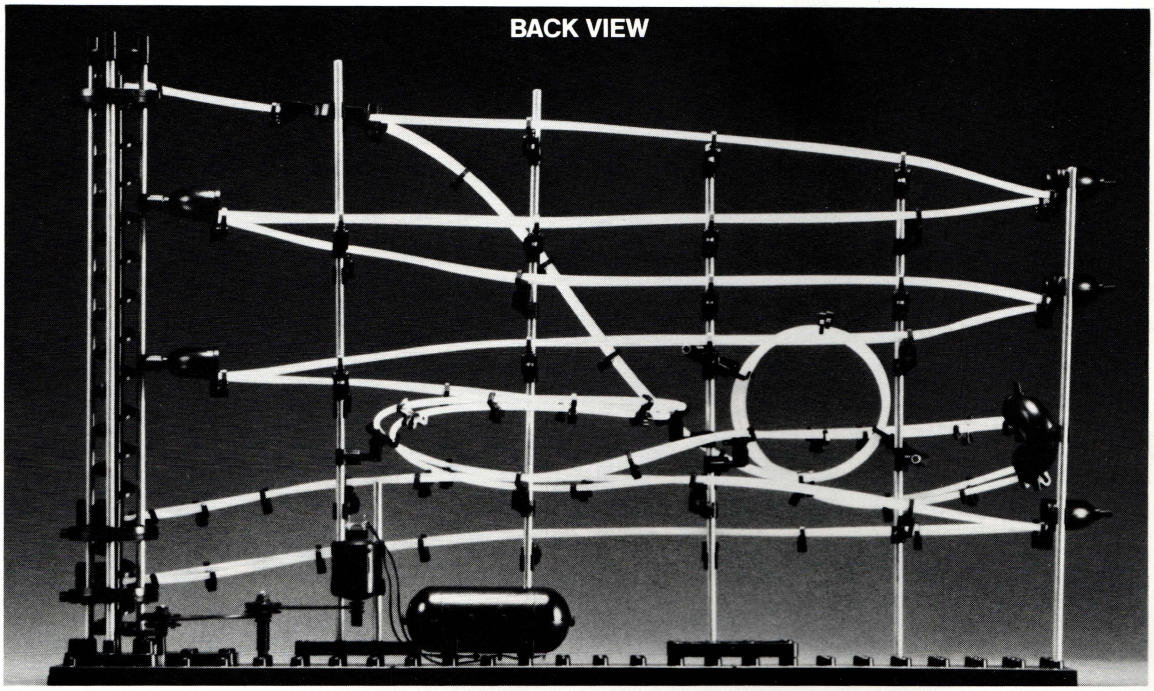


- There may be slight difference between the picture and the actual product.

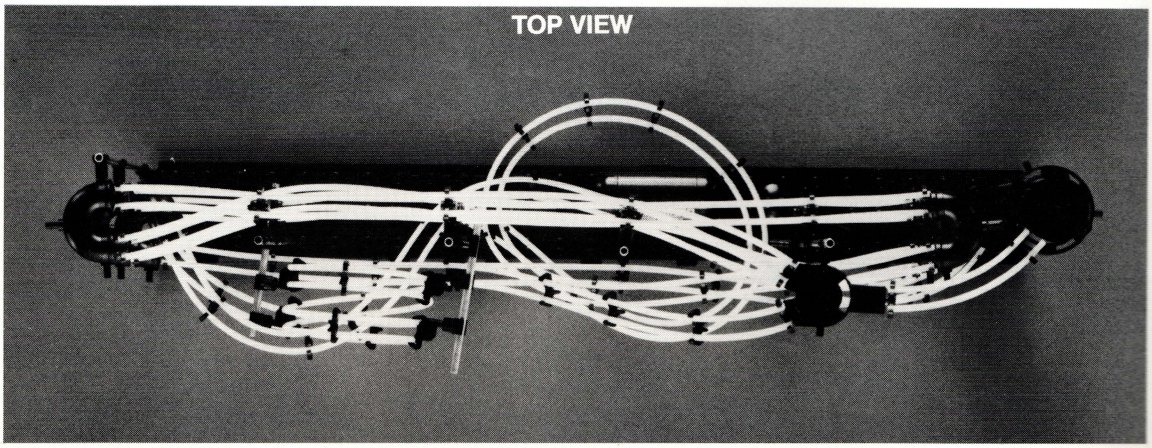
FRONT VIEW



BACK VIEW

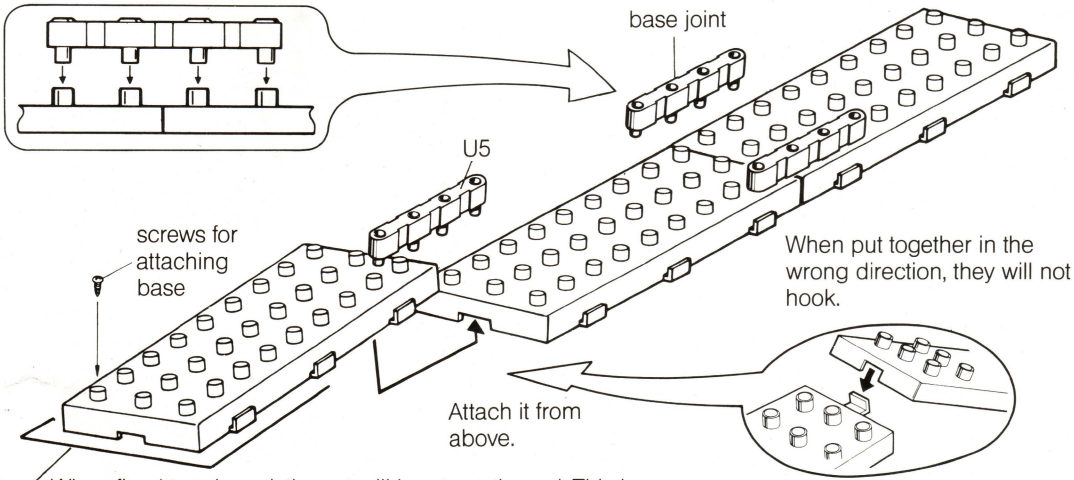


TOP VIEW



1. BASE ASSEMBLY

First, decide on a basic layout, depending upon what kind of course you would like to create (a basic layout is shown). Next, connect the base units using the connecting hooks. Make sure they are aligned properly; they will not connect if put together in the wrong direction. Next, attach base joints to the base, as shown in the picture.



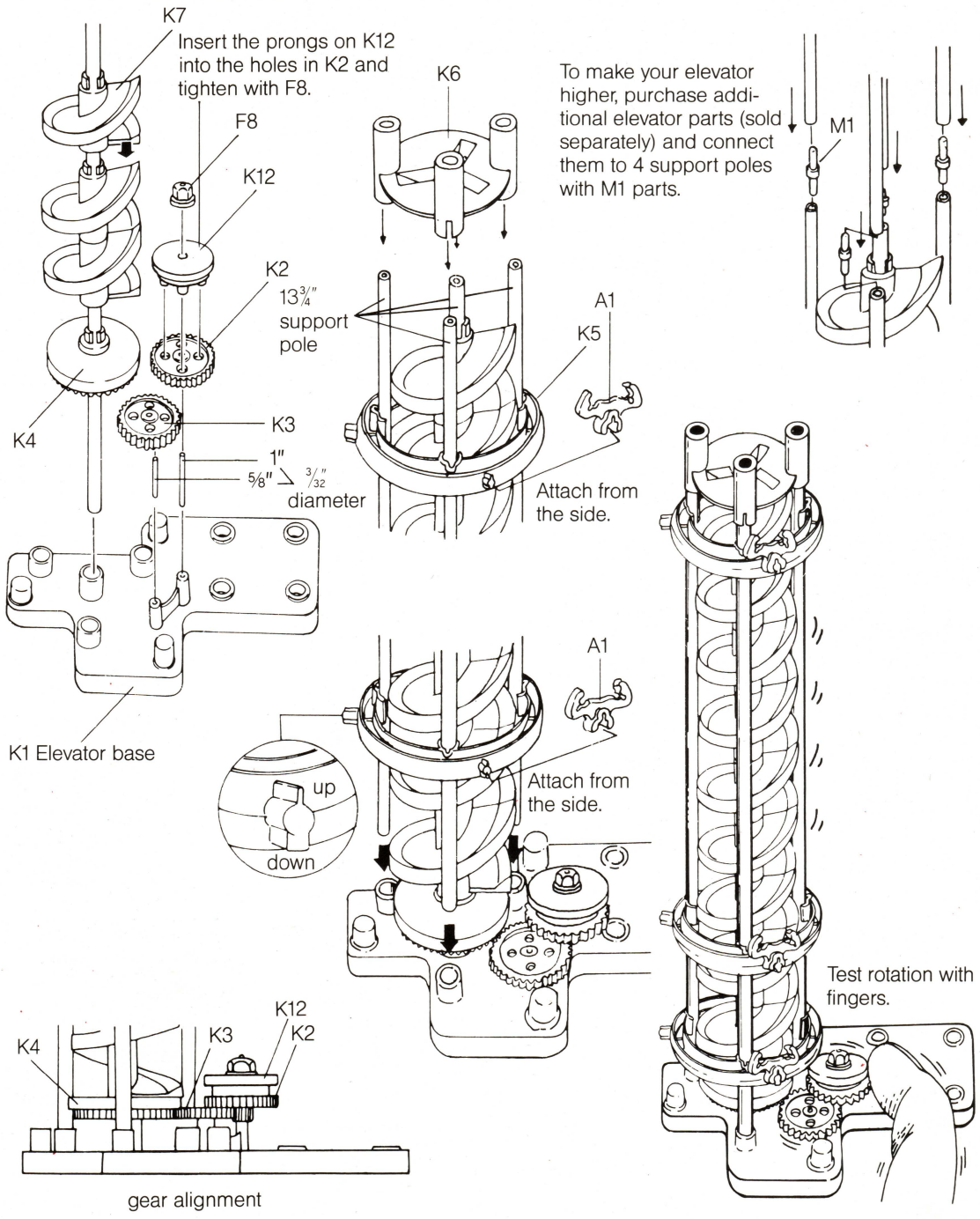
When fixed to a board, the set will be strengthened. This is recommended when the unit is used as a decoration.

2. ELEVATOR ASSEMBLY

Insert 5/8" and 1" gear shafts in the indicated positions, making sure each gear is complete. Insert a 13 3/4" long support pole. Slide a K4 on the pole and add K7s one on top of another. Be careful that K4 is right side up. The gears should match as shown in the picture. When you have finished stacking the K7s, insert 3 more support poles (13 3/4") to the indicated positions, fixing their positions with K5. Make sure you have K5 right side up. Put K6 on top, and the elevator is complete.

K5 will be the entrance or exit for your ball. Make sure it aligns with the rails by jiggling it up and down a little, if necessary. Fix A1 to the entrance.

When you are finished, test to see that the gears turn smoothly by moving them with your fingers. If you hear a strange sound or if it's too tight to rotate, first check to see that the elevator is not warped, then adjust the connection of the gears.



3. MOTOR ASSEMBLY

Connect G3 to the motor as shown, and bend the prongs of the motor slightly inward. Make sure you match the shape of the tip on the back of the motor with the hole of G3. If not matched properly, they will not work well. Place the motor with wires and connectors attached on G1. Cover them with G2. The lead wire should be fastened to the metal fittings tightly. Hook the motor bed to the two support poles and connect the motor to it.

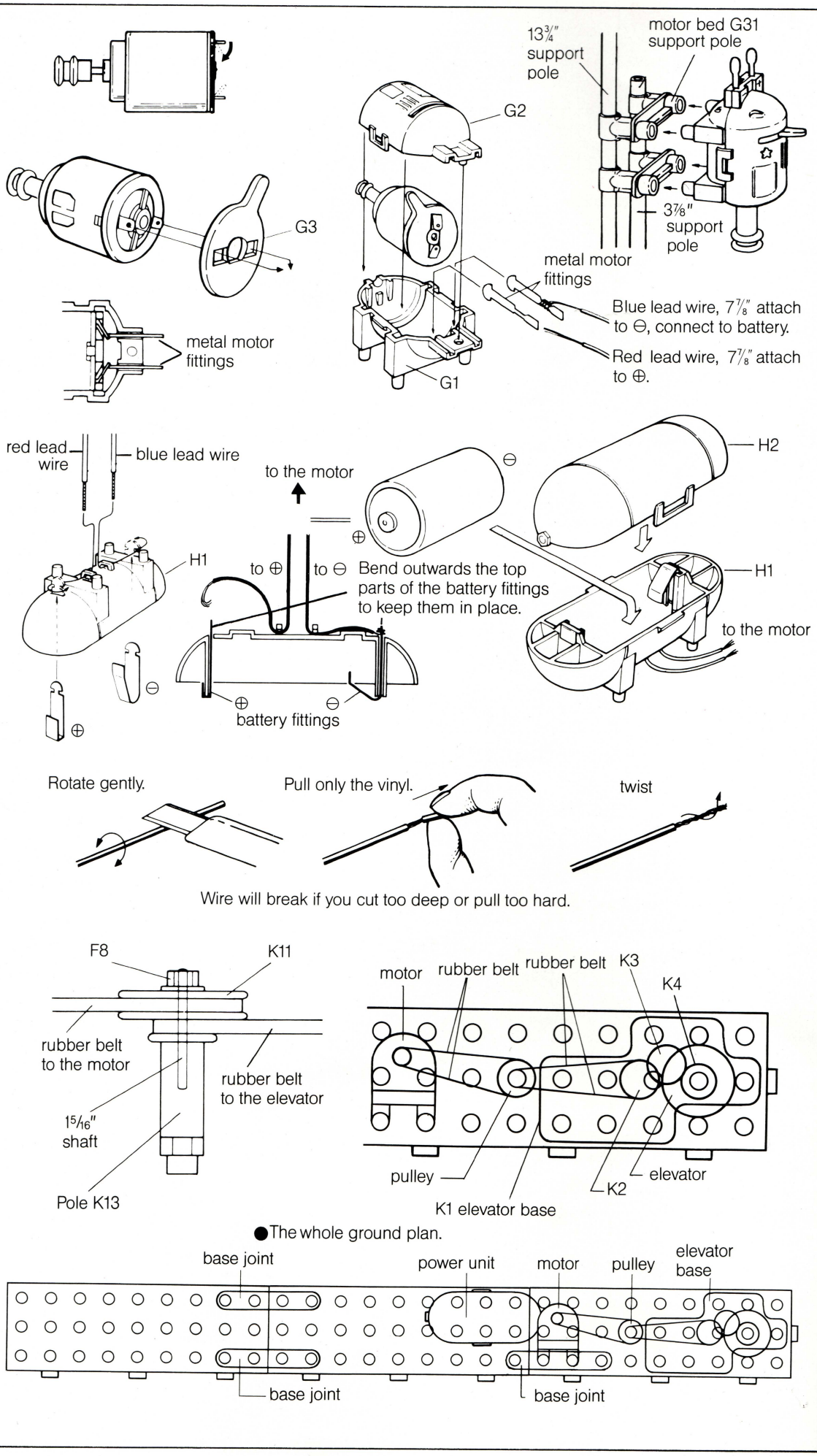
4. POWER UNIT ASSEMBLY

Attach metal battery fittings ⊕ ⊖ and the lead wires to H1. Insert one (1) 'D' battery (sold separately) and cover it with H2. Avoid mixing up ⊕ ⊖.

PLEASE NOTE: To expose the electric wire in the lead line, trim the vinyl cover by carefully cutting it with a knife, and pull it gently.

5. ATTACHING THE ASSEMBLED PARTS TO THE BASE

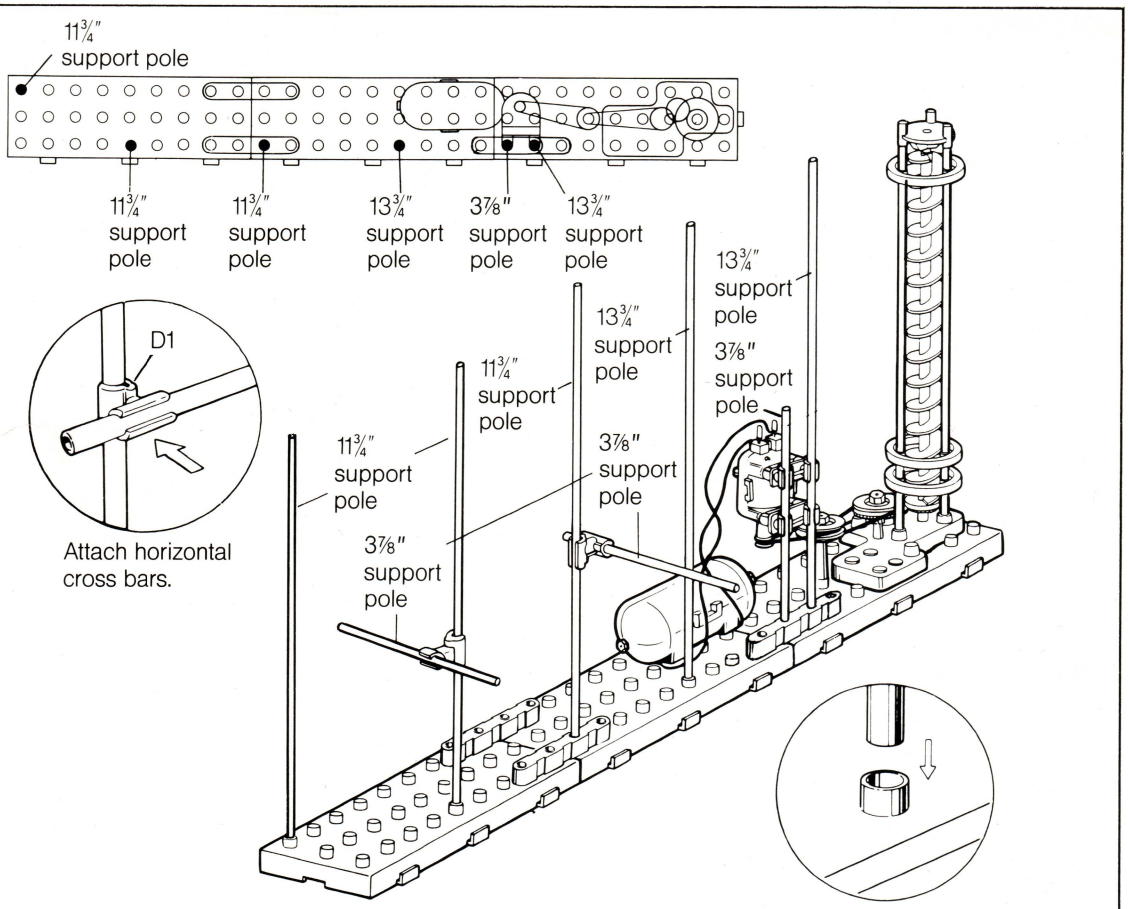
Attach K11 to the support pole K13 as shown. The rubber should be attached as in the drawing. Each part should be placed on the base as shown.



6. HOW TO ATTACH SUPPORT POLES

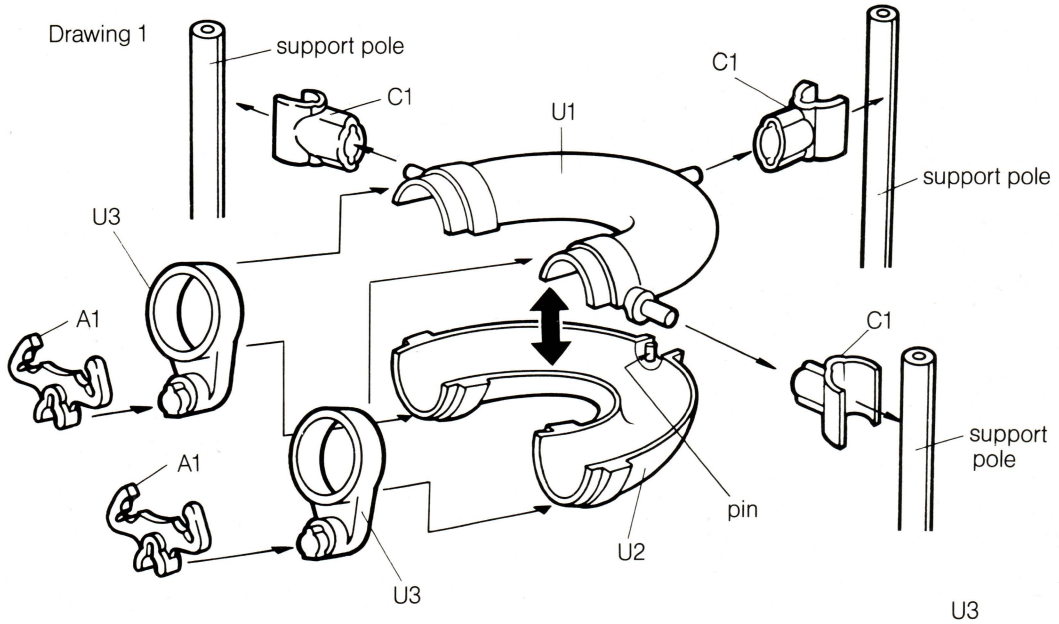
Insert the support poles to the base or base joint holes as in the picture.

Attach horizontal cross bars as shown.

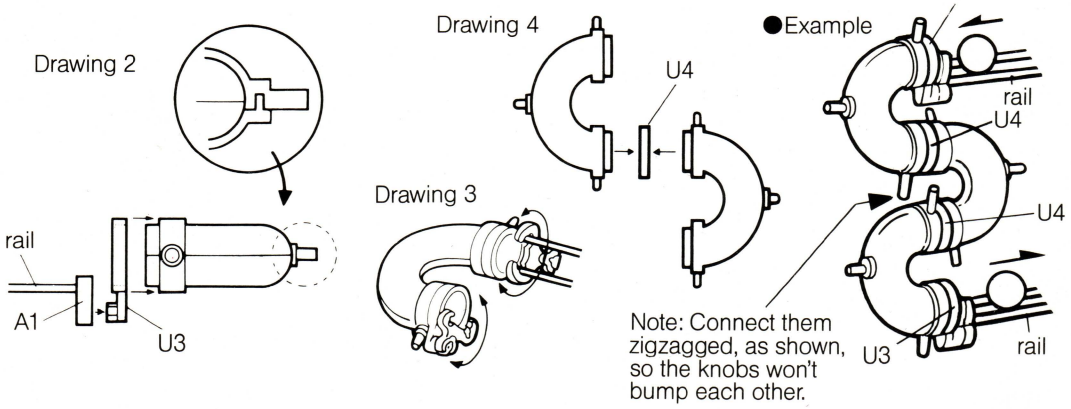


7. HOW TO ASSEMBLE CURVE UNITS

Assemble the whole unit as follows.
First, fit U1 and U2 together and fix them with U3.
Attach A1 to U3 for fitting the rails later. U3 can be turned to change the course. (See Drawing 3.)
Attach it to the poles using C1. Position C1 depending upon your choice of course.

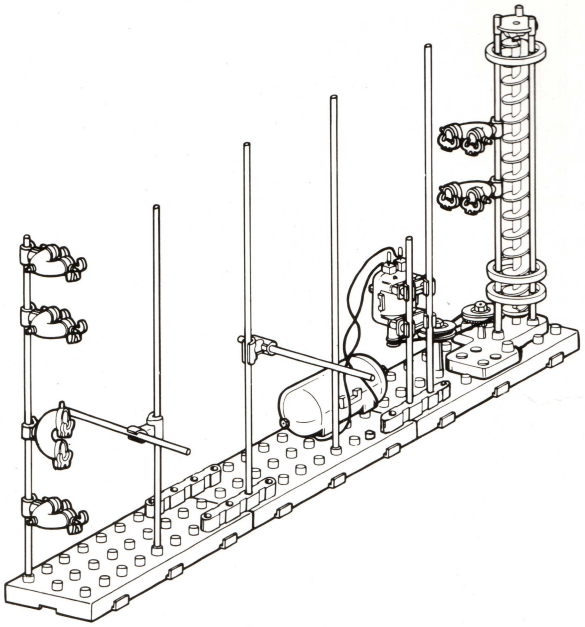


• Connecting curve units together—
You can create interesting and original courses by connecting the curve units together. Use U4 instead of U3 for these connections. (See Drawing 4.)



8. HOW TO ATTACH CURVE UNITS

Attach the assembled curve units approximately as indicated. Final adjustment can be made later when you attach rails or when you do layouts. Here, you are only temporarily assembling them.



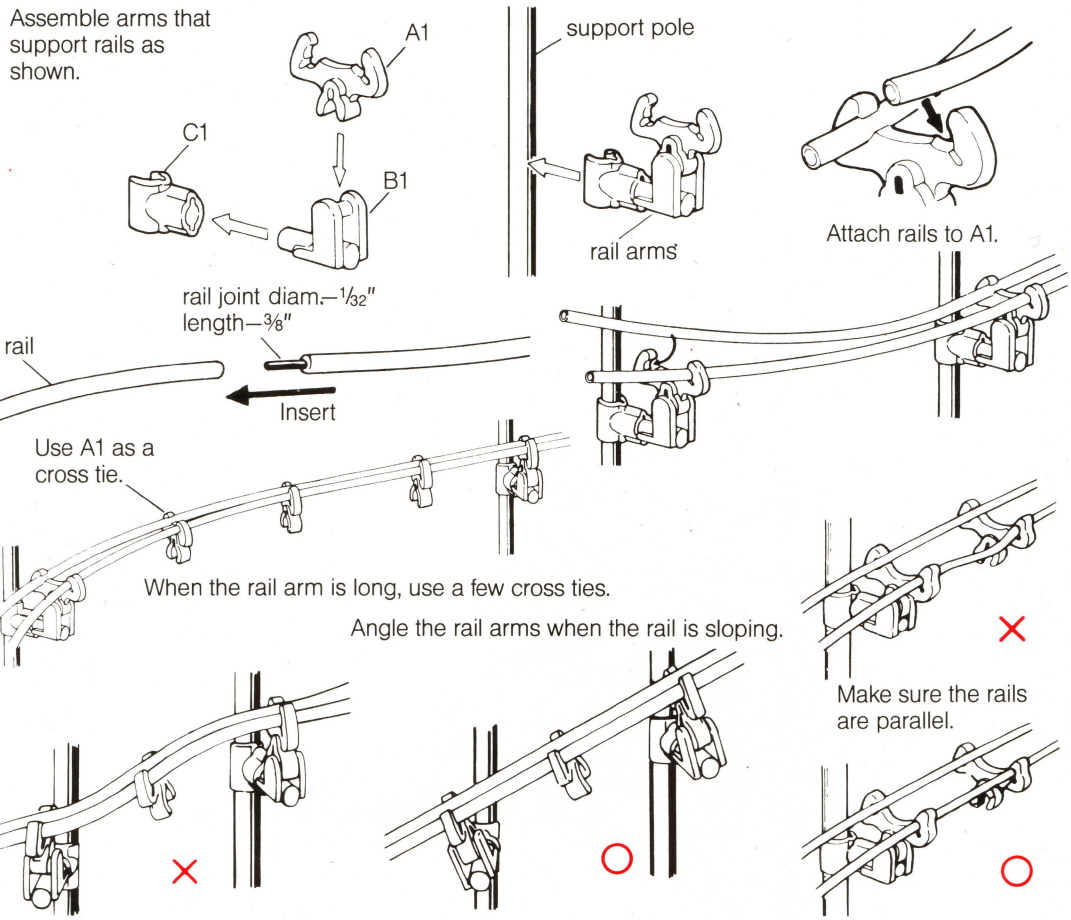
9. HOW TO ATTACH RAILS

Attach rails from below. There is a choice between two courses in the basic layout.

- Attach rail arms on each part, referring to the completed picture of the basic layout.

To connect rails, use rail joints (⅜" shafts). Insert them into the holes in the center of the rails. Trim the end of rails neatly so the joint is smooth.

When the parts are all assembled, test with a ball and adjust accordingly.

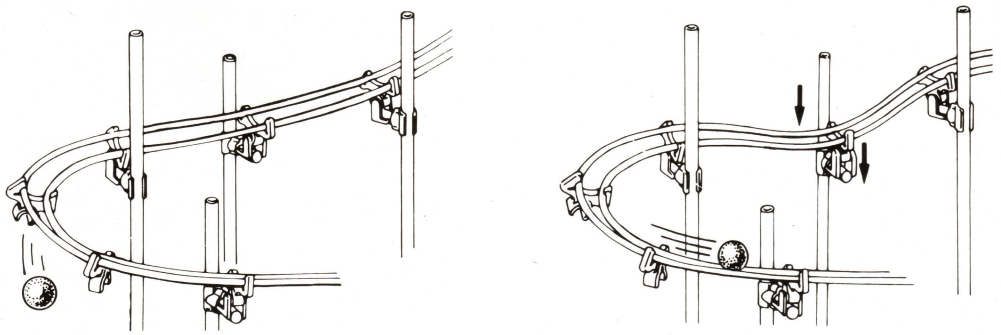


How to assemble switches.

Insert P2, making sure the claw fits into the slot. Be careful not to break the claw. Attach part A1 to the entrances and exits as shown. Then, use C1 to attach the switch to the support pole.

O = CORRECT WAY
X = INCORRECT WAY

If the ball derails, bank the curve. If derailing still occurs, the speed of the ball is too high. Slow the ball down before it enters a curve as shown in the drawing.



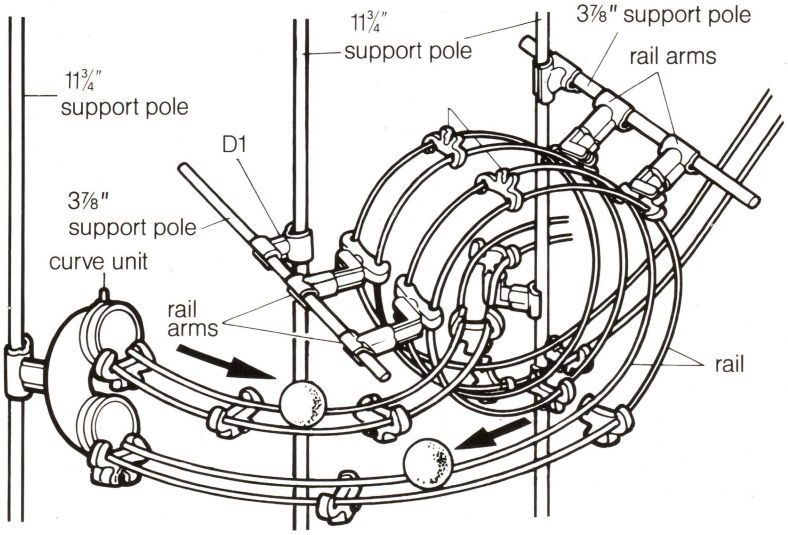
Lower the speed before a curve.

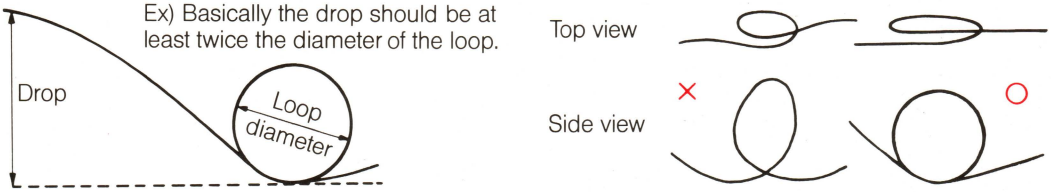
10. HOW TO MAKE A DOUBLE LOOP

To make a loop work well takes careful adjustments. Experiment running a ball to make sure it has enough speed to go around the loop.

Make sure each part is set properly. For example, check to see that rail arms, cross ties (A1), support poles and rails are set properly. Check that rails are not off the cross ties, and check to see that rail arms are not off the support poles.

- As shown on the right (in the basic layout), the ball should enter a curve unit from the bottom and come out on top, after rolling through a double loop. Adjust the speed of the ball or the position of the curve unit accordingly.
- Make sure the rails are not distorted. In particular, the loop has to be in a perfect circle for smooth riding.





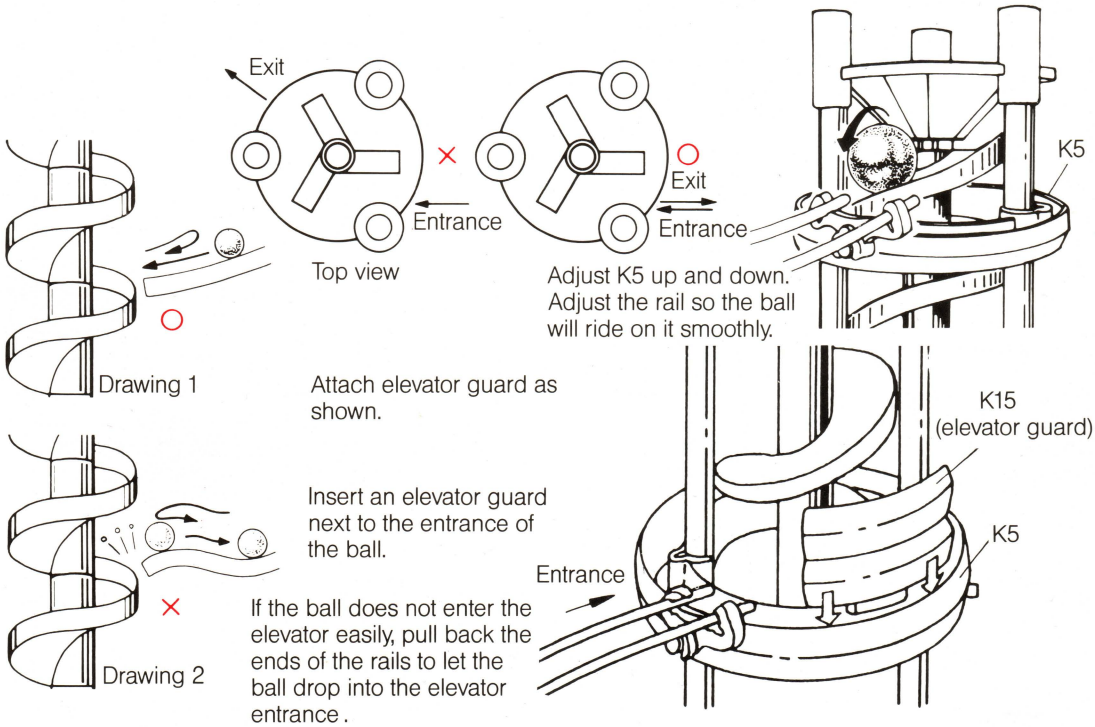
11. ELEVATOR ENTRANCES AND EXITS

Elevator entrances and exits should be both on the same side. This reassures continuous driving.

The elevator entrance should be located on an upper level, allowing the ball to roll easily down a long path as shown in Drawing 1.

If the ball is moving too fast, it may bounce or fall off. Drawing 2 shows a case where the ball bounces back, loses its speed, and stops on the rail.

O = CORRECT WAY
X = INCORRECT WAY

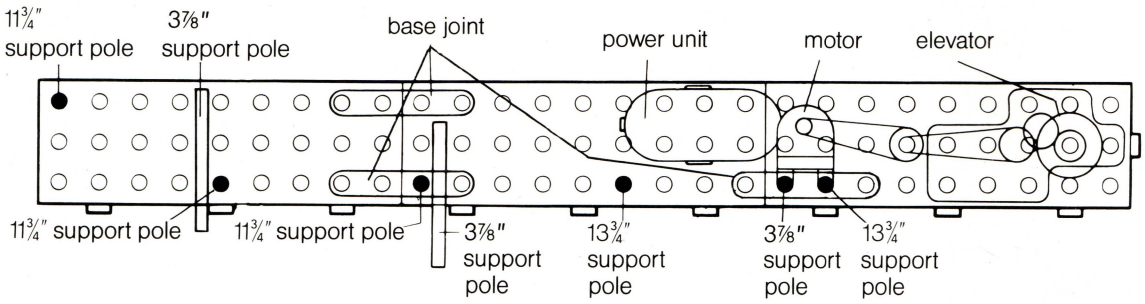

Exit
×
Entrance
Top view
○
Exit
Entrance
K5
Adjust K5 up and down. Adjust the rail so the ball will ride on it smoothly.
○
Drawing 1
Attach elevator guard as shown.
K15 (elevator guard)
K5
Insert an elevator guard next to the entrance of the ball.
Entrance
×
Drawing 2
If the ball does not enter the elevator easily, pull back the ends of the rails to let the ball drop into the elevator entrance.

MASTER THE BASIC LAYOUT FIRST BEFORE YOU CREATE YOUR OWN ORIGINAL COURSES.

SPACEWARP allows you to create your own course layout. But it will help to first master the basics of course creation with the basic layout here. Then you can expand your enjoyment of SPACEWARP with partial changes of the basic layout to totally creating your own layouts.

POSITIONS OF SUPPORT POLE AND POWER UNIT

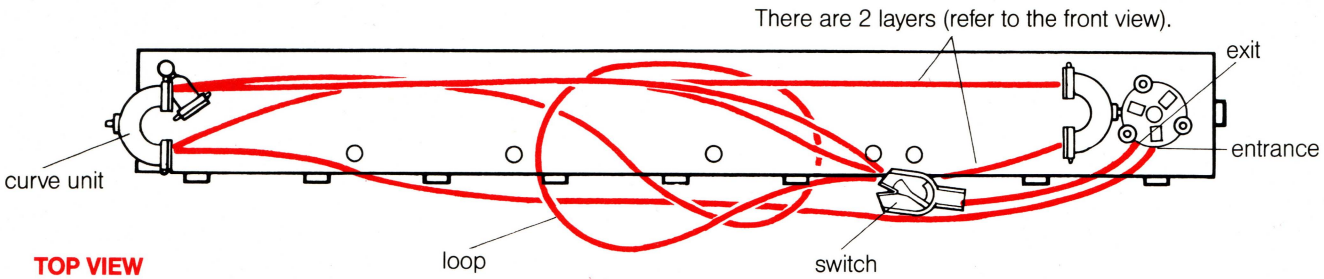
Stand each support pole where indicated with •. Attach cross bars referring to the package and page 5.



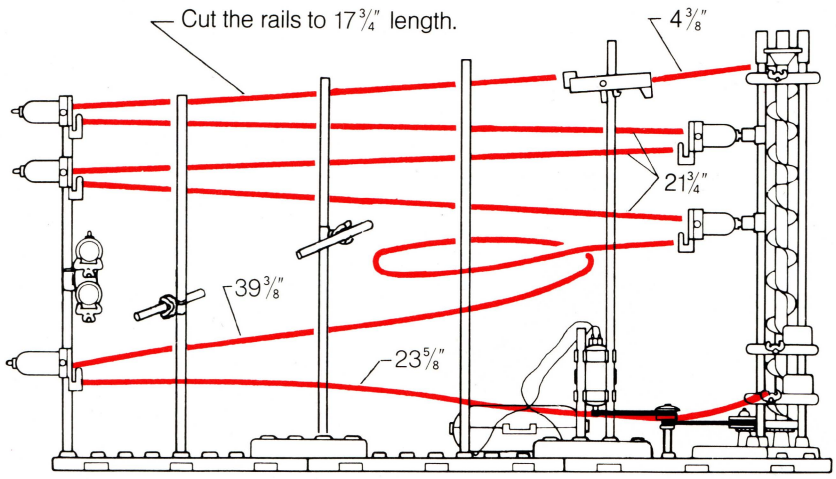
- Attach the elevator, power unit, base joint motors, and pulleys to the positions shown.

There are two courses in the basic layout. (There is one elevator exit, but two entrances due to the use of switches. Please check the pictures carefully.) NOTE: Do not cut the extra rails until the final adjustments of the layout are done.

COURSE LAYOUT ①



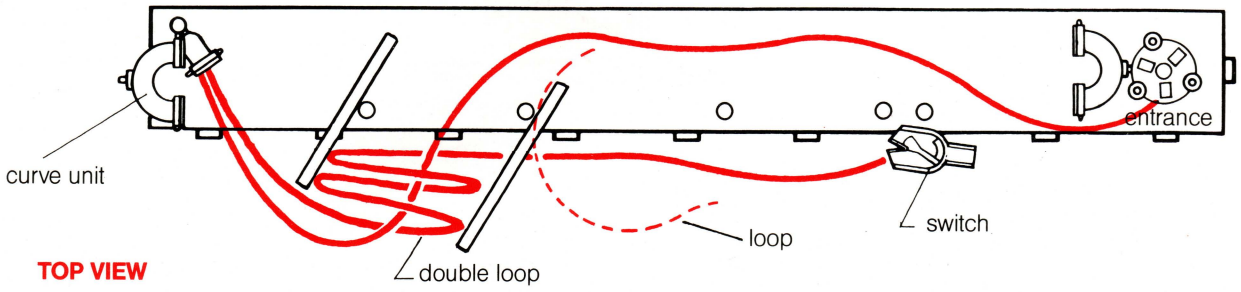
TOP VIEW



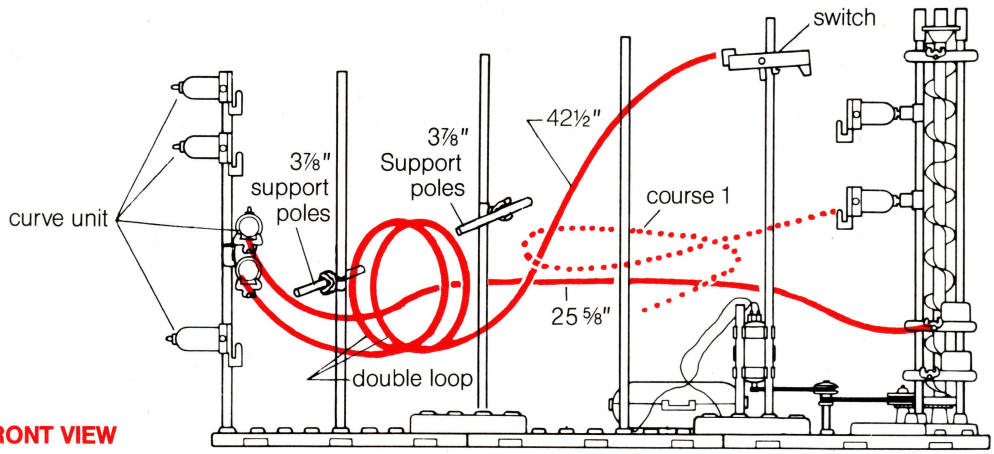
FRONT VIEW

The distance from the exit to the switch is 4⅜" ; from the switch to curve unit it's 17¾" ; from one curve unit to another it's 21¾" (3 layers); from curve unit to curve unit (using a loop) it's 39⅜"; and from curve unit to the entrance it's 23⅝". Cut two rails for each track allowing a little extra according to the specific length. Attach them as indicated in the drawing, and adjust the length, if necessary, after assembling.

COURSE LAYOUT ②



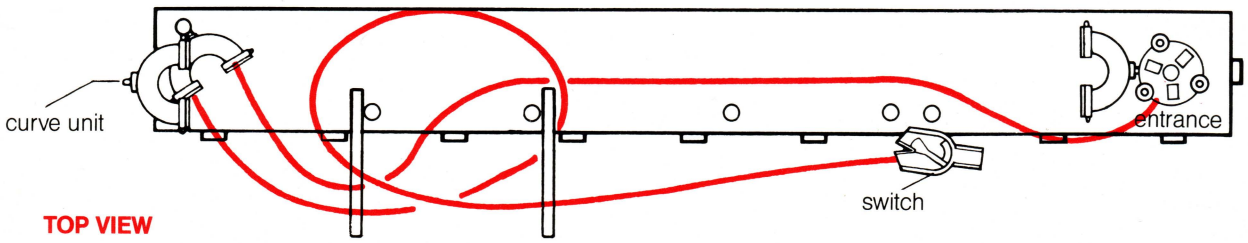
TOP VIEW



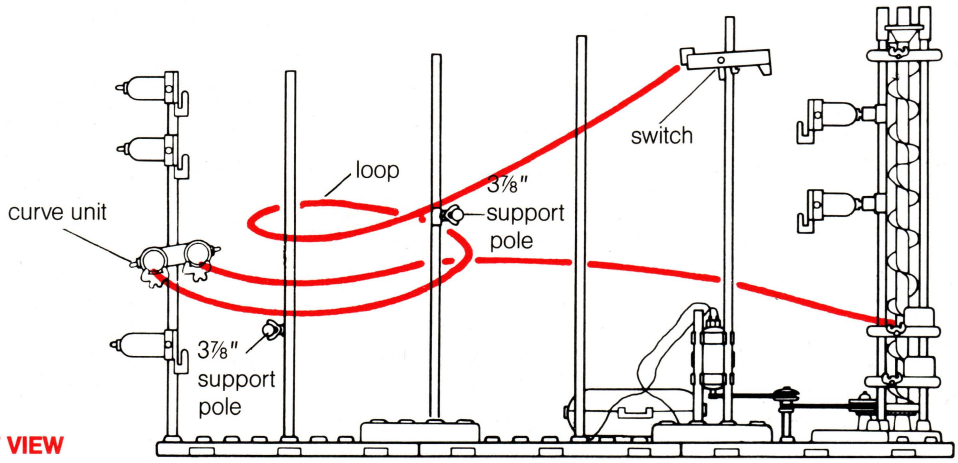
FRONT VIEW

To form the double loop, cut two rails 42½" from the switch to the curve unit, 25⅝" from curve unit to the entrance, and attach them as shown.

COURSE LAYOUT FOR BEGINNERS (Layout ① is the same.)



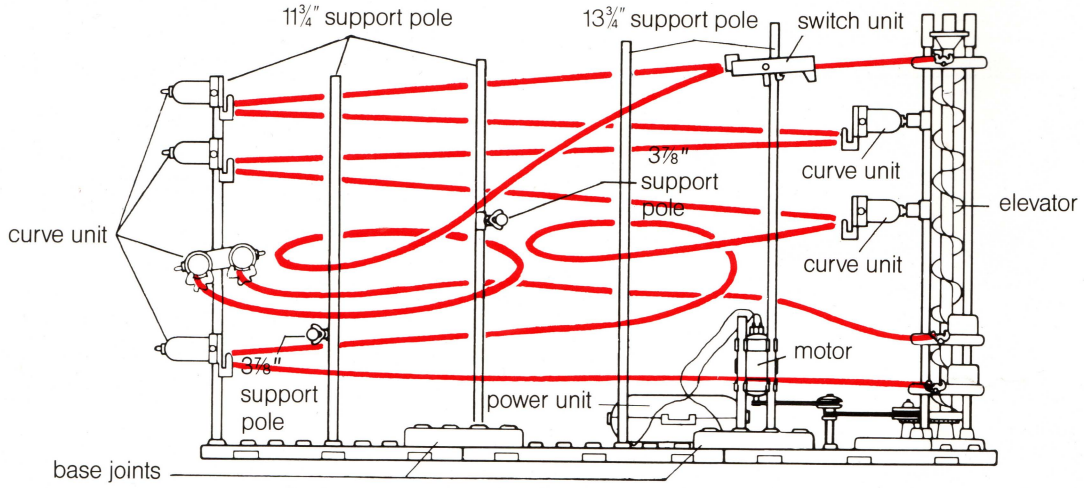
TOP VIEW



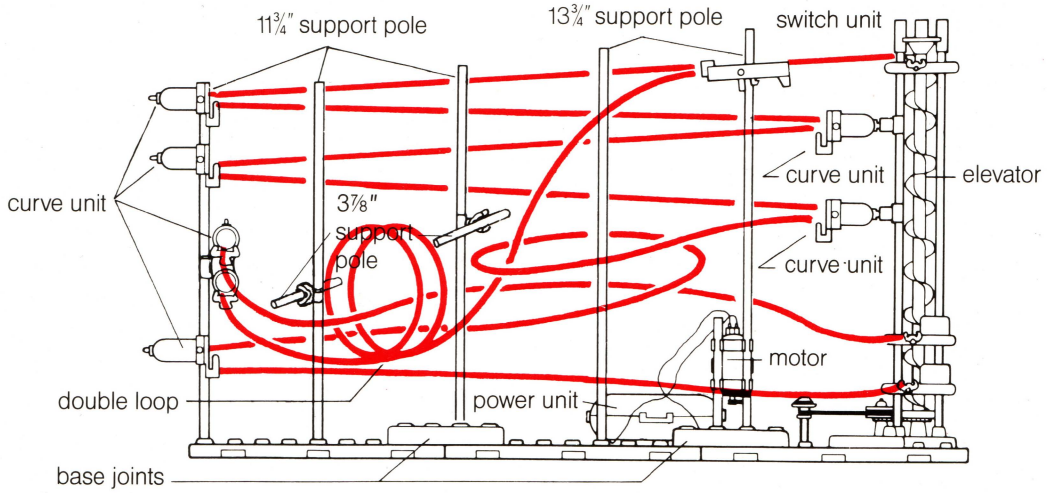
FRONT VIEW

Cut the rails 37½"in length from the switch unit to the curve unit, 25⅝" from the curve unit to the elevator entrance, and attach them as shown.

FRONT VIEW OF THE BEGINNERS' COURSE



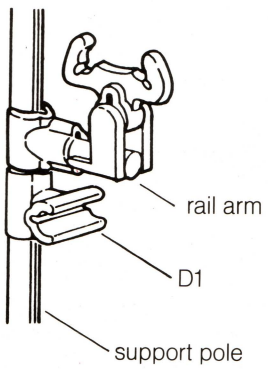
FRONT VIEW OF BASIC LAYOUT



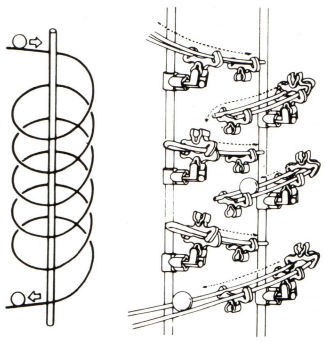
CHECK POINT

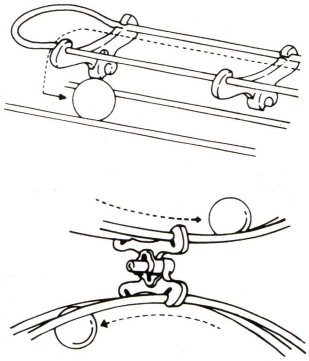
When the whole set is assembled, turn the motor on, and try running the balls. Sometimes, balls may run right next to each other. When 2 or 3 balls run right after each other, the rails may sag due to the weight of the balls. In this case, reinforce the rails using rail clamps or support poles. If the rail arms don't exactly match, put D1 or C1 underneath the rail arms. You may also refer to Check Point 1, Instructions for Attaching Rails on Page 6, or Entrance/Exit explanation of the elevators on Page 7, and enjoy smooth and continuous rides.

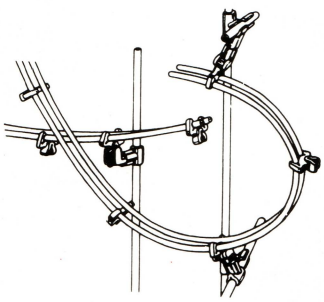
- After enjoying the basic layouts, feel free to accept the challenge of creating your own original layouts.
- This product allows you to assemble bigger layouts with additional parts. Your ingenuity will enable you to expand the layout to its fullest extent.
- Dust or lint can slow down the movement of balls. Occasional wiping with a silicone cloth is recommended.
- It is dangerous to lean on, or to apply weight to, the completed set.



Examples of schemes







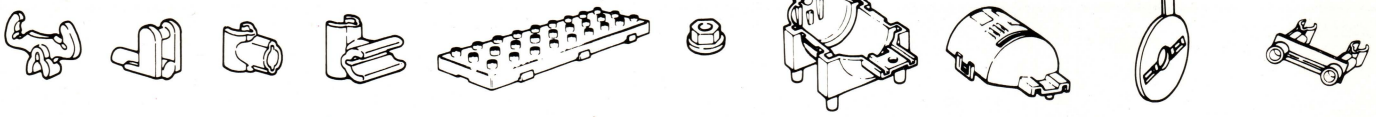
TROUBLE SHOOTING

Problems		Possible reasons
Doesn't move.	The gears don't turn.	The switch is off. The batteries are worn out. The batteries are not placed properly. A wire is loose or improperly wired. Some obstacle is blocking the gears.
	The gears turn.	The gears aren't hooked up closely enough to mesh. The gears are not properly assembled.
It moves sporadically.		The wiring is loose, the battery is weak. The gears are not meshed properly. The gears are not assembled correctly.
The ball falls off the elevator. The ball doesn't climb up the elevator.		The elevator is not perfectly vertical, not aligned properly. The support pole of the elevator is tilted. A wire is loose, the battery is weak.
The ball falls off the course.		See P 6 and 7.
The ball doesn't come out of the elevator.		See P 7.
The ball stops in the middle of the course.		The drop is negative or too little.
It makes a strange noise. It rattles. It makes a rubbing noise.		Loose assembly. The gears are not meshed properly. Something is stuck in the gears.
The ball doesn't make the curve properly.		Adjust the double loop (See P 7). Sometimes it's due to the lack of turning speed. Slide the curve unit up or down on the support pole.
The ball doesn't fit into the curve unit.		Align the Part A1 properly with the hole.

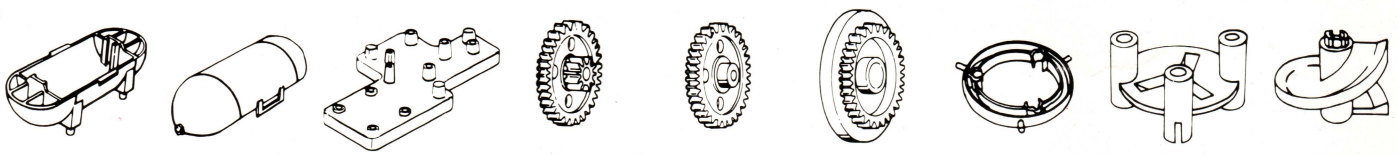
SUITABLE AS INTERIOR DECORATION

This SPACEWARP SET 10 has a flat back, and will make an interesting decoration for a wall or a window. Since the depth is only 5½" it hardly takes up any space. As long as the surface has the depth of the base, it can be placed anywhere including window ledges.

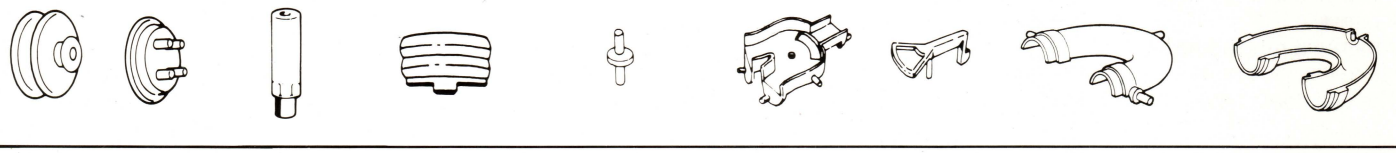
PARTS LIST



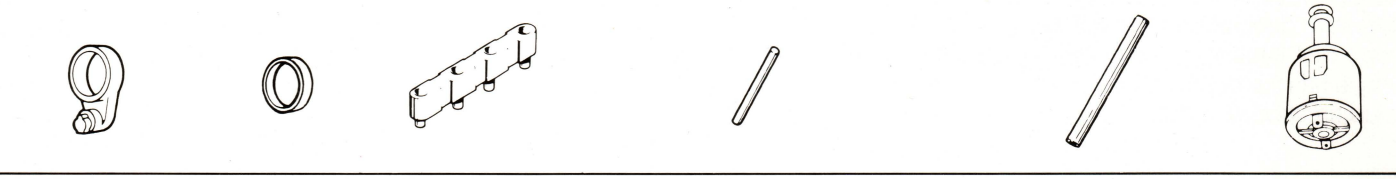
A1	B1	C1	D1	E1	F8	G1	G2	G3	G31
Cross tie	L joint	Joint 1	Joint 2	Base unit	Gear nut	Motor box (bottom)	Motor box (cover)	Switch board	Motor bed
120 pcs.	40 pcs.	40 pcs.	20 pcs.	3 pcs.	2 pcs.	1 piece	1 piece	1 piece	2 pcs.



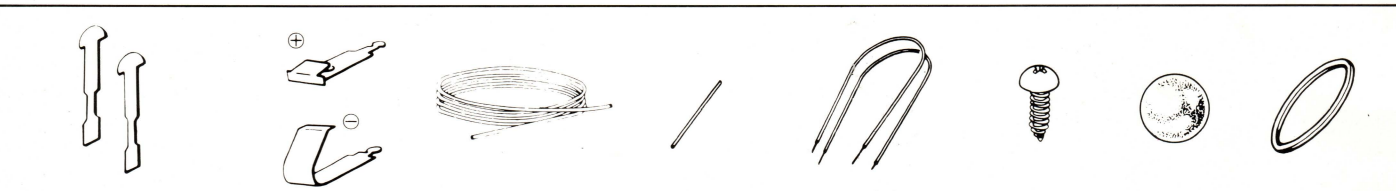
H1	H2	K1	K2	K3	K4	K5	K6	K7
Battery box (bottom)	Battery box (cover)	Elevator base	Elevator gear	Elevator gear	Elevator gear	Elevator parts	Elevator parts	Elevator parts
1 piece	1 piece	1 piece	1 piece	1 piece	1 piece	3 pcs.	1 piece	14 pcs.



K11	K12	K13	K15	M1	P1	P2	U1	U2
Pulley #1	Pulley #2	Pulley mount	Elevator guard	Pipe connecting parts	Switch unit	Switch part	Curve unit part A	Curve unit Part B
1 piece	1 piece	1 piece	2 pcs.	4 pcs.	1 piece	1 piece	6 pcs.	6 pcs.



U3	U4	U5	Shafts $\frac{3}{32}$" Diam.			Support poles			Motor
Curve unit part C	Curve unit part D	Base connector	$\frac{5}{8}$" long	1" long	$1\frac{5}{16}$" long	$13\frac{3}{4}$"	$11\frac{3}{4}$"	$3\frac{7}{8}$"	1 piece
12 pcs.	12 pcs.	6 pcs.	1 piece	1 piece	1 piece	6 pcs.	3 pcs.	3 pcs.	



Metal motor fittings	Battery fittings for ⊕ and ⊖	Rail	Rail joint	Lead wire	Screws for base	Balls	Rubber belt
2 pcs.	1 each	46 feet	$\frac{1}{32}$" Diam., $\frac{3}{8}$" long 10 pcs.	blue, red $7\frac{7}{8}$" 1 each	6 pcs.	3 pcs.	2 pcs.

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